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Notebook 4

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1.6

$$\begin{array}{r} 5.5 \\ 6.4 \\ \hline 19.5 \end{array}$$

Type Lakota.

Lakota peak has fire tower (not shown on 1954 7½ Hermosa quad.; road to it from Murphy Ranch.

Exposures on Lakota peak are nonexistent except for a few thin ledges near summit, largest 6 or 8 feet of very fine grained well-bedded to x-bedded sandstone. At crest thin very fine- to fine-grained sandstone is chertified, frags of this orthoquartzite over much of crest area. To E long dipslope into wooded area of more Lakota, no exposure of basal contact on covered (grass & tree) scarp to E.

Denton couldn't have picked a place showing less Lakota.

Walt Smith Canyon

First cut of consequence shows Fall River - Lakota contact. The lower part of Fall River more sandy than at Billover but only brown weath. ss ledges exposed. About 25' more of Lakota exposed under the hard massive, lcc, fragmental purple-grey-tan siltstone taken as base of section in Billover A. Consists of purple-grey clays in about upper 18'± (under upper silt) then 3.0 - 4' ledge of massive lite grey pink to purple-stained silts. which is about 6' to creek bed.

On up canyon fragments of outcrop in ss ledges, one good partial section of about 50' Lakota mix tic in with expansive descr. above if time taken to map between.

Rapid City Skyline measured sections

56A - First gulley S of TV towers at Dinosaurs, measuring N from lowest exposures in the Lakota silt.

	Width	
1	57.5	Siltstone, fine, massive, gray to purplish gray, hard with subconch. fracture, crab trails & lacy sandy zones. Weathers white.
	15.5	Claystone, with zones ~~Active~~ siltstone in basal 5.0± basal 2.5± of gray clayston above which purplish gray white mottled massive clayey siltbed capped by 1.0 Fe yellow brown layers, of bedded silt & very fine ss. Remainder is dk gray waxy slaty claystone becoming purplish gray near top 2nd, in upper 1.7± is zone red claystone.
(3)	2.7	Claystone, waxy, similar to unit below with which it is commonly but light green in color.
(4)	6.0	Sandstone, fine-grained to very fine gr with fair amount of irreg

masses, lower 2ot is massive. upper part with interlensed light greenish-gray weath. sndy siltstn. and silty layers + partings. light purplish brown with red Fe impreg (zp).

3) 41.5 Siltstone, gray to dk gray, may be slightly clayey, massive, weathers to clstn-like crust of qz white with sonic purple stain. Basal 1.0' splotchy tan + purple stained + rusty red.

4) 41.0 to ? Sandstone, medium to fine-grained, ledge-forming, upper part nodular up and lying to SE-ward.

Offset to ledge under TV shed-. Begins at base sandstone unit 6 above (approx base).

14.0 Sandstone, massive, purplish-brown weathering ledge. Medium gr at base becoming fine-gr in upper part and grading to very fine gr, silty, splotchy layers 0.5 to 1.0 at top.

10.0 Claystone, silty, grading down to slightly clayey siltstone in base. 2 or 3 feet. Clstn is light gray but thinly laminated red and pink, spherulitic from top & base - and on into top underlying unit. Grades to unit above very rapidly but with no apparent sharp break.

1.5 Siltstone clayey, light greenish gray with some purplish mottling and scattered spherulites No sharp break at top, but change within inch

1.2 Siltstone, massive, gray to dark gray with carb flecks. Blocky to subconch. fracture, weathers light pinkish gray

1.5 Siltstone, shaly, and silty shale dark gray, with carb flecks. Laminae, thin layers of pink to purple fe impreg. siltst.

10.2 Sandstone, fine-grained to v fg, thin-bedded, with laminae + thin interbeds shaly silts. and sandy shale. Weathers brownish gray sl... with

basal 1.5' Fe impreg rock to pink and contains ~~my~~ interbeds dark grey silty shale.

Top is locally a fairly massive bed, beneath it about 2' dominantly sandy shale with thin interbeds ss.

Offset — At the Gossage monument reflected the Lakota silt thickness from top of massive ss of 1955 cut. to the thin ss at the crest of the monument. On dip slope no top to the Lakota silt is exposed near this section, but probable that thickness measured here is very close to total.

Downdip from Gossage hill in route to S, Vertical clay beds and thin ss lenses come in under the Lakota silt. No good place for measurement, appear to be all these in cliffs of 1955 A.

Because of strongly cliffed Lakota S of this feature, passed it but N

Tilford Road - Fall River section
(Morris Creek road)

Contact in old gravel pit about 200 feet S. of Rd on W slope of ridge. Measuring up.

Lake
4.0 - ?

Claystone, light gray, silty, in upper foot with scattered spherulites becoming red & purple stained below.

4.3

Siltstone, sandy, dark gray to black, with coaly chips, becoming harder, massive and sandy - pinkish and greenish gray from fine, coaly fragments.

3.0

Sandstone very fine grained and siltstone, platy lite gray to pinkish weathering ledge

22.5

Partly covered slope. Some float shale and platy sandstone with fine sandy layers.

1.6

Sandstone, chiefly v.f. grained, thin bedded, with interbedded siltsty and shaly siltst. and sandst. Weathers shaly yellowish gray

with local Fe stone impreg. layers

5.5 Partially covered. Buff shale chocolate green paper shale and silty shale at base. Also 0.5 lignitic sh 4.0 ft 4.5 ft from top.

0.5 - 1.0 Sandstone. Single massive bed, ripple marked surface. Fine-grained weathers yellowish gray. Crops out in long dipslope along side of creek. Bed rests on 4.0 ft which forms waterfall. Here it is overlain by 1.0 ft shaly siltstone & shale. About 0.5 of Fe impreg. shaly siltstone full of plant trash.

On hill crest & dipslope large blocks of [illegible] channel sand up to 2.0 ft [illegible] lower

0 (soil) [illegible] local [illegible] of [illegible] 5 ft. — Continuing up from top of unit above.

6.0 Shale, grey to dark grey, silty to non-silty, locally lies [illegible] in base of bed. Thin interbeds fine gr. sandstone, chloritic in lower half. Locally some of these thin ss are fossiliferous, with [illegible]

1.3 Sandstone, fine grained, brittle, massive, weathers [illegible] to pinkish grey.

1.0± Clayey silty, to sandy at base, light grey, fen ces., with Fe O+ [illegible] clusters [illegible] upper foot

6.0+ Variable zone, locally shaly grey to dk grey clayey with carb flecks and about 0.6 lignitic shale at top. Laterally within 75 feet changes to 1.0 lig shale top; 0.5 thick sand; 3.5 grey clayey [illegible] carb frags. and 1.0 lig shale at base.

6.5 Sandstone, thin bedded, buff weath, with interbeds & [illegible] sandy shale.

20.0± Covered, float of sandy shale and some platy (Fe impreg local) sandstone. Hand leveled distance is approx to top of easternmost dip slope and is prob. very close to Skull Creek contact.

Rapid Cr. - Sky ne headers area

Sections in and near St. Cloud Street.

A. Section in upper Fall River N side St. measuring up from Fe stone layer within vzv. zone.

(1) 5.6 Claystone silty, some clayey [illegible] locally sh. [illegible] grey locally with red cast. Thin fe impreg [illegible] layers silt - some may be fe stone. Claystone has carb [illegible]. At base is 0.6 fe stone, sandy, weathers purplish brown.

3.0 Sandstone, fine grained [illegible] thin beds with interbeds silty claystone locally spherulitic. Laterally SS thins out into the clstn except for few [illegible] beds. Weathers lite grn to fresh surface.

2.6 Chert & siltstone and clay siltstone, massive, lite grey, [illegible] pink stain, spotty areas spherulitic [illegible] some sandy beds, grades to units [illegible]

11

fizzles w/ HCl where Fe.

4	5.5±	Sandstone, very fine-grained, in beds 0.1 to 3.0± with some silt partings which are locally Fe impreg. SS also Fe st. within, weathers pinkish brown, carb frags.
5	1.1	Siltstone, shaly & silty shale, gray, plant fragments abundant.
6	6.4	Sandstone, very fine to fine-grained, uniform, in massive even beds 0.1 to 1.0, which are obscurely lam, loc x-lam. weathers light brown. Surface ripple-mkd.
	21.0	Sandstone, v fg, sm f-g, siltstone and minor sh'y shale, finely interbedded. Shaly interval is dominantly sandy shale, grading to unit above, has one local crinoidal lens 2.0', scattered Fe impreg. layers. Bedding warm irregular sandy ripples, weathers light gray to brownish gray.
8	11.6	Sandstone, fine-grained, in beds 0.1 to 1.0, laminated to x-lam, Grades with unit below.

ripple mkd surfaces, weathers brown. Carb fragms. Holds clasts up on top Fall River "wormy" less than bedded silt Clast on it suggests thin zone of this to Skull Creek. Would guess less than 5' to next.

B. Offset to cut on N side ~~road~~ stCloud, st about 1 block on up street to W. Measuring down from base of unit 4 of preceding section

4.7 Sandstone and siltstone, massive friable beds, more than 4' to 2' base with some shale partings. Is chiefly mixed silt and vf ss. Some Fe specs.

8.0± Siltstone and silty claystone, medium shale, light grey, some flecks with thin Fe stone layers and spotty secondary growth of sphaerulites. Only upper 3' 5" in delta-vestian process. Not but checked in Rd cut preceding section

19.5 Shale, dk gray - sl. tan, thin interbedded to interlaminated with siltstone, latter commonly to impvy. Weathers to brownish gray platy glevey loam. Elsewhere to grassed slope with platy unbroken silt fragments.

6.2 Sandstone, very fine-grained, even-bedded 0.1 to 2.0, Fe impvy in upper 0.6 ft. Lam. to x-lam, grades to sandy silt downward, scattered Fe impvy layers, grades to unit below.

5.0 Siltstone, very [illegible] thinly interbedded with very fine-grained sandstone.

4.0 Shale, sandy, gray to dark gray, silty, fissured thumbnailed, locally interlam with sh & worm-burrowed

1.0 Shale, black finely silty, platy

2.0	Siltstone and very fine ss (loc. fine gr beds) thinly interbedded, siltst is shaly, minor silty sh.,
0.3	Ironstone.
2.0	Siltstone irreg. interlam. with silty dk gray shale.
3.3	Sandstone, very fine grained, irreg lam. dark & light gray, grades to silts above & below.
2.5	Siltstone, dk gray, carbonaceous frags, locally shaly to blocky,
5.0	Siltstone, (silty laminated), to x-lam dark and light gray with thin interbeds siltst & very fine ss. Scattered carb frags.
5.0 – ?	Claystone, silty to non silty, light-Variegated, is gray with yellowish stain, spheroidal at top, red below.